

Guidelines for the clinical management of severe illness from influenza virus infections

Guideline Development Group

October 2023

Overview

For the development of the WHO *Guidelines for the clinical management of severe illness from influenza virus infections*, a formal Guideline Development Group (GDG) comprising individuals with broad expertise spanning multiple specialties and all WHO regions was convened. This group also includes patient panel members.

The technical unit collected and managed declarations of interests (DOIs). In addition to the distribution of DOI forms, during meetings the WHO Secretariat described the DOI process and an opportunity was given to GDG members to declare any interests not provided in written form.

WHO wants to acknowledge all the experts that contributed to the GDG and thank them for their commitment and support to achieve the evidence-based recommendations for care of patients with influenza virus infections.

Lorena Acevedo Sedano



Lorena Acevedo Sedano obtained her medical degree in 2006, specialized in paediatrics in 2012 and completed her fellowship as a Paediatric Intensivist at the Universidad Nacional de Colombia in 2015. Currently, she is in the final stages of completing a master's degree in Clinical Epidemiology at the Universidad del Rosario, Bogotá. She works as a Paediatric Intensivist in two of the highest complexity hospitals in Colombia: Fundación CardiolInfantil and Clínica del Country and thus has broad expertise in both non-invasive and invasive ventilatory support, as well as extracorporeal oxygenation as a last resort in cases of severe paediatric acute respiratory distress syndrome. In addition to her clinical work, she serves as a clinical instructor in paediatric intensive care for the Universidad de la Sabana and the Universidad del Rosario and is a member of the Latin American Society of Pediatric Intensive Care. She is a representative to the World Federation of Pediatric Intensive & Critical Care Societies. She has authored chapters on critical care in paediatric books, contributed to the Colombian consensus on the management of SARS-CoV-2, and published articles in indexed journals. See Annex 1.

Ahmed Alhadyan



Ahmed Alhadyan holds a Doctor of Optometry degree as well as a master's in Optometry and Vision Science from King Saud University in Saudi Arabia. He is trained to manage and treat vision and ocular health and to prescribe contact lenses and vision rehabilitation aids for various conditions. His interests include improving the quality of medical products, specifically optical and eye products, and new treatments for dry eyes. During the pandemic, he witnessed relatives hospitalized due to COVID-19 and recognizes the importance of developing new guidelines for positively impacting health. Ahmed participated in the WHO *Therapeutics and COVID-19: living guideline* (molnupiravir, nirmatrelvir, VV116). See Annex 1.

Wagdy Amin



Wagdy Amin is Director General for the Chest Diseases Department, Executive Manager of National Tuberculosis Programme (NTP) of the Ministry of Health and Population and Chairman of the Society of Anti-Smoking, Tuberculosis and Chest Diseases in Cairo, Egypt. In addition, he is a member of scientific committees for COVID-19 and TB control. He has long clinical experience as a pulmonologist and trainer in many fields in chest diseases (e.g. TB, severe acute respiratory infections) and shared in developing TB, asthma and COPD guidelines and preparedness plans for influenza control. When serving in the NTP, Wagdy Amin supported the training of more than 250 health care workers working in TB control in Eastern Mediterranean Region countries and started a 3-year training course for African countries on control of TB, COVID-19 and respiratory infections (2022–2024). He has organized training courses on multi-drug resistant TB and hospital management, and conducted research in the field of chest diseases and TB and other infectious diseases such as influenza and COVID-19. He participated in developing the national strategic plans of the TB programme in Egypt from 2005 and TB control guidelines for health care workers. He has been part of the GDG for the WHO *Clinical management of COVID-19: living guideline* for 2 years. See Annex 1.

André Ricardo Araujo da Silva



André Ricardo Araujo da Silva is Professor of Paediatrics at the Federal Fluminense University, Niterói, Brazil, where he leads the Teaching Laboratory of Prevention and Control of Healthcare-associated Infections and coordinates the Scientific Initiation Program of Medicine course. His primary academic focus is infectious diseases in children, particularly antimicrobial stewardship, infections by multi-drug resistant bacteria, infections in critically ill children, COVID-19 and respiratory viruses. He holds a postdoctoral degree in antimicrobial stewardship in children from Dr von Hauner Children's Hospital, Ludwig-Maximilians-Universität, Germany. During the COVID-19 pandemic he attended more than 350 confirmed children with COVID-19 in Brazil and published a number of articles/pre-prints on COVID-19. André Ricardo participated in the WHO *Therapeutics and COVID-19*: living guideline and WHO MISC Severe COVID-19 Working Group Network. See Annex 1.

Mamadou Dioulde Balde



Mamadou Dioulde Balde is a Professor of Gynaecology and Obstetrics at the University of Conakry, Guinea, with a postgraduate degree from the University of Heidelberg, Germany. He is coordinator of the Centre for Research in Reproductive Health in Guinea. Many research projects have been carried out by his team of scientists in collaboration with international institutions (including the United Nations Population Fund, United States Agency for International Development, WHO and World Bank), which have supported a number of health policies and programmes in Guinea. See Annex 1.

Erlina Burhan



Erlina Burhan is a pulmonologist with more than 16 years' experience in pulmonology and respiratory medicine in Indonesia, where she is spearheading the fight against TB. Burhan undertook research in Namibia during her postgraduate studies at Heidelberg University, Germany. Since then, she has been Head of the Infection Division Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Indonesia. Other positions held include Head of the Professional Organization Coalition against Tuberculosis, member of the Board of Directors for the International Union Against Tuberculosis and Lung Diseases; and Head of the TB Assembly of the Asia Pacific Society of Respiriology. During the COVID-19 pandemic, she acted as Head of the COVID-19 Commando Team Persahabatan National Lung Hospital and contributed to COVID-19 guidelines, training health care workers and advising on health policy in Indonesia. Erlina participated in the WHO *Clinical management of COVID-19: living guideline*, WHO *Therapeutics and COVID-19: living guideline* and *Drugs to prevent COVID-19: living guideline*. See Annex 1.

Maurizio Cecconi



Maurizio Cecconi is an Anaesthesiologist and Intensive Care Specialist and Chair of the Department of Anaesthesia and Intensive Care Units at Humanitas Research Hospital, Milan, Italy. He is Professor of Anaesthesia and Intensive Care and Vice-President of the MEDTEC School at Humanitas University, Milan. Previous to his current appointments, he worked for 14 years as an NHS Consultant at St George's Hospital, London. His research focus is on improving outcomes in perioperative care, as well data science and the physiology of shock, acute respiratory failure and sepsis. He is the President-elect of the European Society of Intensive Care Medicine and part of the Executive Committee of the Surviving Sepsis Campaign. Maurizio participated in the WHO *Clinical management of COVID-19: living guideline*, WHO *Therapeutics and COVID-19: living guideline* and *Drugs to prevent COVID-19: living guideline*. See Annex 1.

Quoc Vu Dat



Vu Quoc Dat is a lecturer at the Department of Infectious Diseases, Hanoi Medical University, Viet Nam and Vice-Head of Department of Tropical Diseases and Harm Reduction, Hanoi Medical University Hospital. He completed the Career Development Fellowship with the WHO Special Programme for Research and Training in Tropical Diseases and undertook his PhD training at the Oxford University Clinical Research Unit in Viet Nam. He has expertise in clinical management of severe or life-threatening infections, zoonotic diseases and emerging and re-emerging infectious diseases in resource-constrained settings. His research interests focus on interventions to emerging health issues related to infectious diseases, particularly in critical care settings, and on the capacity of health care systems in response to sepsis and severe acute respiratory infection. He served as a member of the national technical working groups for the development of national guidelines for the management of infectious diseases and is a member of the WHO Strategic and Technical Advisory Group on Neglected Diseases (2022–present). See Annex 1.

Andrew Gray



Andrew Gray is a pharmacist whose research interests include policy analysis, rational medicines use and the application of antiretroviral therapy in resource-constrained settings. He is a Senior Lecturer in the Division of Pharmacology, Discipline of Pharmaceutical Sciences, School of Health Sciences, University of KwaZulu-Natal, Durban, South Africa. He is also Honorary Senior Scientist: Consultant Pharmacist for the Centre for the AIDS Programme of Research in South Africa and non-executive Director of JEMBI Health Systems. He is a Past President of the South African Association of Hospital and Institutional Pharmacists. He is currently a Director of the FIP Foundation for Education and Research. He was appointed to the South African National Essential Medicines List Committee in 2013 and currently chairs its Paediatric Expert Review Committee. Currently he is Chair of the Names and Scheduling Committee of the South African Health Products Regulatory Authority and serves on its Legal Committee and Pharmacovigilance Committee. He is a member of the WHO Expert Panel on Drug Policies and Management and has served as a member, rapporteur and co-chairperson of the Expert Committee on the Selection and Use of Essential Medicines, as chairperson of the sub-Committee on Essential Medicines for Children, on the WHO Guidelines Review Committee, and the WHO Guideline Steering Group for Family Planning Guidance. Widely published, he has been a reviewer for a number of international and local journals, is associate editor of the *South African Pharmaceutical Journal*, section editor of the *Journal of Pharmaceutical Policy and Practice*, and serves on the editorial boards of the *International Journal of Clinical Pharmacy, Health Systems and Reform* and *BMC Health Services Research*. See Annex 1.

Rashan Haniffa



Rashan Haniffa is a Professor of Critical Care Medicine and Health Systems Research at the University of Edinburgh, a consultant in Intensive Care Medicine at University College Hospital, London, a consultant in Intensive Care Medicine at Kotelawala Defence University Hospital Sri Lanka and the Honorary Director of NICS-MORU (Sri Lanka) and a trustee of the Network for Improving Critical Care Systems and Training (United Kingdom charity). He has received several awards, including the National Institute of Health Research Academic Clinical Lecturer, University College London (2018–2020), the President's award for scientific research Sri Lanka (2016, 2017, 2018 and 2019) and the Intensive Care Society (United Kingdom), Research Gold Medal Award 2016/17 for strategies to improve critical care outcomes in resource-limited settings, as well as research grants. He has been invited to various positions, in particular as an expert for the WHO Clinical Characterization and Management Working Group – 2020 and as the Co-Chair for the WHO COVID-19 Global Data Platform Clinical Advisory Group (2021). See Annex 1.

AKM Mosharraf Hossain



AKM Mosharraf Hossain is a distinguished physician and academician from Bangabandhu Sheikh Mujib Medical University, Bangladesh, known for his specialization in medicine and pulmonology. He holds an MBBS from Dhaka Medical College and PhD from Dhaka University. He has been awarded several prestigious fellowships, including from the Royal College of Physicians of Edinburgh. His professional journey spans various significant roles, including a comprehensive internship, Assistant Registrar, Registrar and Resident Physician at Dhaka Medical College Hospital, and Fellow in the Respiratory Medicine Division at the National University Hospital in Singapore. Since 2021, he has served as the Pro-Vice Chancellor (Academic), while also holding the position of Professor of Respiratory Medicine (since August 2011). An accomplished researcher, he has over 60 publications in various national and international peer-reviewed journals. His professional contributions have earned him numerous accolades, including the Young Investigator award by the European Respiratory Society in 2005. Hossain has been active in leadership roles within his professional community and has taught postgraduate students in a range of disciplines. As an education leader, he oversees the MD Pulmonology course (which he founded). He also made a significant contribution by establishing Bangladesh's first Sleep Laboratory in 2005. See Annex 1.

David Shu Cheong Hui



David Shu Cheong Hui is Chairman of the Department of Medicine and Therapeutics and Professor of Respiratory Medicine, Chinese University of Hong Kong (CUHK) since 1998. David Hui graduated from the University of New South Wales in 1985 and then trained in Respiratory Medicine and Sleep Medicine in Sydney, Australia. He was heavily involved in the clinical management of patients with SARS at the Prince of Wales Hospital during the major outbreak in 2003. He served as a WHO advisor to review the clinical management of influenza A(H5N1) during the early human outbreak in Viet Nam in February 2004 and has since been a regular advisor to WHO on the clinical management of severe acute respiratory infections. He joined urgent WHO missions for investigation of outbreaks of Middle East Respiratory Syndrome (MERS) in Riyadh and the Republic of Korea in 2013 and 2015 respectively. He has contributed to WHO treatment guidelines including the clinical management of influenza A (H5N1) virus in 2007, clinical management of influenza A (H1N1) pandemic in 2009, and WHO training workshops in the clinical management of influenza A(H7N9) and COVID-19. He served as an advisor to the Hong Kong Special Administrative Region Government on COVID-19 public health from January 2020 to May 2023 and has been the Chairman of the Scientific Committee on Emerging and Zoonotic Diseases, Centre for Health Protection, since 2019. David has published over 400 peer-reviewed journal articles and 24 book chapters since joining the CUHK in 1998. He was in the top 1% of highly cited researchers (cross fields) in 2021 and 2022 assessed by Clarivate, with an H index over 80 (Web of Science). See Annex 1.

Yae-Jean Kim



Yae-Jean Kim is a paediatric infectious diseases specialist and a Professor of the Department of Pediatrics, Sungkyunkwan University School of Medicine, Samsung Medical Center, Seoul, Republic of Korea. She is Vice-President of the Korean Society of Pediatric Infectious Diseases and an executive board member of the Asia Pacific Society for Immunodeficiencies. She is also the co-lead for the Asian Network for Surveillance of Resistant Pathogens Pediatrics Group. Her area of special interest is respiratory viral infection and infection in high-risk patients. She performed studies on influenza vaccine clinical trials and influenza vaccine effectiveness in Korean children, and influenza-associated neurological complications and central nervous system complications of influenza. During the 2009 H1N1 pandemic, she reported the first survival case of H1N1pdm09 virus infection with necrotizing pneumonia rescued by extracorporeal membrane oxygenation in the Republic of Korea. She served as an advisory board member of the Korea Expert Committee on Immunization Practices to the Korea Disease Control and Prevention Agency. She has been also a panel member of the WHO GDG on COVID-19 treatment during the COVID-19 pandemic. See Annex 1.

Niranjan Kissoon



Niranjan "Tex" Kissoon is President of the Global Alliance for Sepsis and Co-Chair of World Sepsis Day. He is the Past President of the World Federation of Pediatric Critical and Intensive Care Societies; and Professor, Pediatric and Surgery (Emergency Medicine) Department of Pediatrics at the University of British Columbia in Vancouver, Canada, as well as the University of British Columbia BC Children's Hospital Endowed Chair in Acute and Critical Care for Global Child Health. He has been involved in both advocacy and in promoting World Sepsis Day as part of a global initiative. His international work has included many areas of the world with limited resources and vulnerable critically ill children. He is fully committed to improving the health care of children nationally and internationally. As a recognized expert in the field of paediatric emergency and critical care, he has contributed to over 500 peer-reviewed publications and authored over 90 book chapters. He has been a visiting professor at more than 75 institutions worldwide and a member of editorial boards for 10 journals. Professor Kissoon was awarded a Distinguished Career Award by the American Academy of Pediatrics in 2013 as well as the prestigious Society of Critical Care Medicine's Master of Critical Care Medicine award in 2015 and the BNS Walia PGIMER Golden Jubilee Oration 2015 Award for major contribution to paediatrics in India from the Postgraduate Institute of Medical Education and Research (Chandigarh, India). In 2020 he was awarded the Society of Critical Care Medicine Drs Vidyasagar and Nagamani Dharmapuri Award in recognition of sustained exemplary and pioneering achievements in the care of critically ill and injured infants and children. See Annex 1.

Yee-Sin Leo



Yee-Sin Leo served as the Executive Director of Singapore's National Centre for Infectious Diseases (NCID) from 2017 to 2023. During her tenure, she established NCID as an innovative institution integrating clinical care, public health, research, training, and community outreach. She led teams through multiple outbreaks in Singapore from 1999 to 2022, published over 400 peer-reviewed scientific papers and received numerous national awards. A recognized authority in her field, she serves as a member in numerous committees and advisory boards including multiple World Health Organization workgroups. She has received prestigious accolades and now contributes her expertise as Senior Consultant at the Director-General Health's Office in Ministry of Health, Singapore and Senior Advisor, National Centre for Infectious Diseases and National Healthcare Group. Yee-Sin participated in the WHO *Clinical management of COVID-19: living guideline*, WHO *Therapeutics and COVID-19: living guideline* and *Drugs to prevent COVID-19: living guideline*. See Annex 1.

Rakesh Lodha



Rakesh Lodha trained in paediatrics at the All India Institute of Medical Sciences, New Delhi, India, and has been faculty since 2000. His main areas of work are paediatric intensive care, paediatric respiratory diseases and infectious diseases. He has worked in the areas of sepsis, severe sepsis, healthcare-associated infections (HAIs), severe infections and pneumonia in children. His group has conducted multiple studies in children with pneumonia. He has also conducted systematic reviews to assess optimal fluid therapy in severe sepsis/septic shock, determine signs of sepsis, and compare oral vs parenteral antibiotics for pneumonia. He is a member of the Pediatric Sepsis Definitions Taskforce of the Society of Critical Care Medicine and of the Global Burden of Diseases Group. He has been a member of WHO GDGs on fluid guidelines, management of pneumonia and diarrhea in children, and clinical management of COVID-19. See Annex 1.

Asif Mujtaba Mahmud



Asif Mujtaba Mahmud (Naushad) is presently working as Senior Consultant and Head of Respiratory Medicine at the Asgar Ali Hospital, Dhaka. He is a qualified pulmonologist who retired as an Associate Professor of Respiratory Medicine after 33 years of service under the Government of Bangladesh. He graduated from Chittagong Medical College in 1983. He obtained a Diploma in Tuberculous & Chest Diseases and PhD in Respiratory Medicine from Tohoku University, Japan. During his doctoral course he was conferred the Young Investigator's Award. As member, board of editors and contributor, he has been involved in the formulation of national guidelines on asthma and COPD, a handbook on TB for MBBS students, national guidelines and operational manual for TB control and for programmatic management of drug-resistant TB. He serves as the Secretary General of the Bangladesh Lung Foundation and Joint Secretary of the National Anti-TB Association of Bangladesh and was a member of the WHO GDG which updated the WHO consolidated guidelines on the treatment of drug-resistant TB in 2022. See Annex 1.

Hela Manai



Hela Manai is an emergency doctor at the Emergency Medical Service Tunis, Tunisia, with a number of years of solid practice experience. Since 2016, she has co-led the simulation unit within the Emergency Medical Service Tunis and teaches medical students and residents at the Faculty of Medicine, Tunis. She has been involved in several research projects and international workshops in the field of emergency medicine. Hela participated in the WHO *Clinical management of COVID-19: living guideline*, WHO *Therapeutics and COVID-19: living guideline* and *Drugs to prevent COVID-19: living guideline*. See Annex 1.

Refiloe Masekela



Refiloe Masekela is Associate Professor and Head of Department of Paediatrics and Child Health at the University of KwaZulu Natal, Durban, South Africa. She completed her undergraduate medical degree at Witwatersrand University, and specialist paediatric training at the University of Pretoria. She completed her Paediatric Pulmonology Fellowship training at the Catholic University in Leuven, Belgium, and the University of Pretoria. Her research interests are asthma epidemiology, including access to affordable medicines in children as well as pulmonary function testing and improving access to pulmonary diagnostic tests in Africa. She is Co-Chair of the Global Asthma Network and a Science Committee Member of the Global Initiative of Asthma. She is President of the Pan African Thoracic Society (PATS) and member of the Global Lung Initiative Network. She is passionate about research capacity strengthening in Africa, and is currently Co-Director of the PATS Methods in Epidemiology, Clinical and Operational Research Flagship programme in Africa. See Annex 1.

Emmanuel Nsutebu



Emmanuel Nsutebu is Chair of the African Sepsis Alliance and Investigator for the African Research Collaboration on Sepsis. He is a consultant infectious diseases physician and Chief of Infectious Diseases at Sheikh Shakhbout Medical City, Abu Dhabi. He previously worked at the Royal Liverpool Hospital as Associate Medical Director for Deterioration and Sepsis and as a clinical advisor for the National Health Service in England (sepsis and deterioration). He is a member of the Global Sepsis Alliance Board and Executive Committee. He is a member of the Abu Dhabi Government Health Service Infectious Disease and Infection Control Council and the SEHA Critical Care Council. Both councils led the health service response to the COVID-19 pandemic in Abu Dhabi. He is passionate about strengthening health services in low- and middle-income countries to care for severely ill patients such including patients with sepsis and emerging infections such as COVID-19. He has a special interest in sepsis, quality improvement, patient safety and clinical leadership. Emmanuel participated in the WHO *Clinical management of COVID-19: living guideline*, WHO *Therapeutics and COVID-19: living guideline* and *Drugs to prevent COVID-19: living guideline*. See Annex 1.

Nida Qadir



Nida Qadir is an Associate Professor of Medicine and the Associate Director of the Medical ICU at the Ronald Reagan University of California Los Angeles (UCLA) Medical Center. She is also the Co-Director of UCLA's Post-ICU Recovery Clinic. Her research focuses on ARDS, shock and post-intensive care syndrome. She is a sought-after pulmonary and critical care educator who has served as faculty for numerous international conferences. She has contributed to multiple clinical guidelines in the field of critical care and serves on the WHO GDG for *Therapeutics and COVID-19: living guideline*. See Annex 1.

Saniya Sabzwari



Saniya Sabzwari is Associate Professor in the Department of Family Medicine at the Aga Khan University, Karachi, Pakistan. She is a Fellow of the American Academy of Family Physicians. Her area of special interest is geriatrics. She established the first outpatient geriatric service in Pakistan and developed geriatric undergraduate and postgraduate training programmes at the Aga Khan University in 2008. Her research focuses on community geriatrics, on which she has published several papers. She is also part of the Geriatric Special Interest Group for the World Organization of Family Doctors. Saniya has participated in the WHO *Clinical management of COVID-19: living guideline* and WHO *Therapeutics and COVID-19: living guideline*. See Annex 1.

Nancy Virginia Sandoval Paiz



Nancy Virginia Sandoval Paiz is a doctor and surgeon and graduated from the University of San Carlos de Guatemala. Her specialty lies in Internal Medicine at the Hospital Roosevelt, Guatemala. She has an international master's in Tropical Parasitic Diseases from the University of Valencia, Spain, and a master's in Infectious Diseases from the Hospital del Mar, Autonomous University of Barcelona, Spain. She is Past President of the Central American and Caribbean Association of Infectious Diseases and of the Guatemalan Association of Infectious Diseases. She works as Head of Service and Infectologist of the Patient Safety Committee of the Department of Internal Medicine, and is an active member of the Antimicrobial Use Optimization Program and of the Hospital Roosevelt Nosocomial Infections Committee. She is an Undergraduate Professor of Internal Medicine at Rafael Landívar University and Chair of the Organization of Women in Science for the Developing World (Guatemala Chapter). She has been chosen as Illustrious Guatemalan in the scientific category in the 2022 Seguros Universales awards. See Annex 1.

Yinzhong Shen



Yinzhong Shen is a Chief Physician, Doctoral Supervisor, Professor at the Shanghai Public Health Clinical Center, Fudan University, and a Member of the Standing Committee for the Tropical and Parasitic Diseases Branch, Chinese Medical Association, Infectious Disease Branch of the Shanghai Medical Association, and Technical Advisory Group on SARS-CoV-2 Virus Evolution of WHO and WHO COVID-19 GDG. He is the Chair of Emerging and Re-emerging Infectious Diseases Group, Infectious Diseases Branch, Shanghai Medical Association and a member and Deputy Secretary General of the 2nd Academic Committee of the China Association for Prevention and Treatment of STDs and AIDS, Vice Chairman of the HIV and Tuberculosis Committee of the Chinese Association for Prevention and Treatment of STDs and AIDS. His work mainly involves clinical management and research in the field of infectious diseases, specializing in clinical and basic research in infectious diseases, especially in COVID-19, influenza, AIDS, STIs, TB and invasive mycosis. As principal investigator, he has undertaken three projects of the Shanghai Science and Technology Commission, and a clinical trial on oral antiviral drugs for COVID-19, including VV116. He won the Shanghai Medical Science and Technology Award in 2017. As first author, he has published more than 30 papers in SCI journals and seven monographs. He is also a member of editorial board of the *Chinese Medical Journal* and *Viruses*, and 10 Chinese journals. See Annex 1.

Gulzhan Shopayeva



Gulzhan Shopayeva graduated from Aktobe State Medical Institute, Kazakhstan, in 1990. Her PhD thesis focused on the clinical and microbiological variants of chronic diarrheal syndrome and her post-doctoral dissertation, titled "Clinical and pathogenetic features of chronic viral hepatitis B and/or C in patients with pulmonary tuberculosis", was completed in 2010. She has an impressive academic and research career spanning over 30 years and has been actively involved in scientific research programmes and projects conducted by the Kazakh National Medical University, Ministry of Health of the Republic of Kazakhstan, Ministry of Education and Science of the Republic of Kazakhstan, as well as the International Science and Technology Center, focusing on different aspects of infectious diseases. She has also contributed to the development and review of clinical protocols for diagnosis and treatment of infectious diseases at national level. In recognition of her contributions to the field of health care, she was awarded the badge of Excellence in Healthcare by the Ministry of Health and Social Development of the Republic of Kazakhstan in 2019. See Annex 1.

Sebastián Ugarte Ubiergo



Sebastián Ugarte Ubiergo is a medical doctor, internist and specialist in critical care medicine who currently serves as ICU Director, INDISA Clinic, Universidad Andrés Bello, Santiago, Chile. His other positions include Director of the Postgraduate Program in Intensive Care Medicine, Faculty of Medicine, Andrés Bello University; Director Department Epidemic Response, Chilean Society of Critical Care and Emergency Medicine; and member of the Expert Advisory Team of the Pan American Health Organization for the development of COVID-19 and influenza guidelines. He has been the recipient of many grants, honours and awards and has published widely in national and international journals. Sebastián participated in the WHO *Clinical management of COVID-19: living guideline* and WHO *Therapeutics and COVID-19: living guideline*. See Annex 1.

Timothy Uyeki



Timothy Uyeki is the Chief Medical Officer in the Influenza Division, Centers for Disease Control and Prevention (CDC), and has interests in antiviral treatment and clinical management of influenza and respiratory viral infections, human infections with avian influenza A viruses, and emerging viral infectious diseases. He co-chaired the Infectious Diseases Society of America Influenza Clinical Practice Guidelines published in 2019 and has been a consultant to WHO on seasonal, avian and pandemic influenza, Ebola, SARS, MERS and COVID-19. He is a member of the National Institutes of Health COVID-19 Treatment Guidelines Panel, and the WHO GDG on Therapeutics and COVID-19. He is a Clinical Professor at the University of California, San Francisco School of Medicine, Department of Pediatrics, and Adjunct Associate Professor at the Rollins School of Public Health, Emory University. Timothy is the Clinical Chair for the WHO GDG for influenza. See Annex 1.

Evangelina Vazquez Curiel



Evangelina Vazquez Curiel is a physics graduate of the Faculty of Science at the Autonomous University of Mexico. She has a master's in Materials Science and completed a PhD in Science. In 1995, she had her first child. During birth and postpartum, she suffered several adverse events including HAI. In 1996, she began working for patient safety, promoting prevention of HAIs in Mexico City. In November 2005, she took part in the global Patients for Patient Safety (PFPS) workshop in the United Kingdom, where the Declaration of London was written. Here she became a champion and a founding member of the PFPS team. Since 2006, Vazquez has participated in workshops, and global, regional and national events on patient safety. In 2008, she founded the Mexican PFPS Network, which she directs. In this same year the Pan American PFPS Network opened, for which she is a General Coordinator. In 2009, she represented the patient's voice in the global launch of the campaign "Save Lives: Clean Your Hands". She has written articles on patient participation, patient safety and prevention of HAIs. She co-authored *Nursing and patient safety* and the *Handbook for the prevention and control of infections associated with health care* and collaborated on the chapter "Patients for patient safety" in *Patient safety and clinical risk management*. In 2020 she was member of the external review group for peer reviewing the WHO *Use of chest imaging in COVID-19: a rapid advice guide*. She has been a member of the Global Advisory Group of PFPS for WHO since 2014. See Annex 1.

Sridhar Venkatapuram



Sridhar Venkatapuram is an academic-practitioner in global and public health ethics and justice. He is Associate Professor in Global Health and Philosophy at King's College London and Deputy Director of King's Global Health Institute. He conducts impact-driven interdisciplinary research which aims to improve our understanding and realization of health equity and justice. He is known for helping establish the area of "health justice" philosophy, for engaging with and advising public/global health practitioners, and for amplifying ethical reasoning in public/global health education, research and practice. Sridhar has worked at or advised diverse organizations such as Population Council, Soros foundations, Doctors of the World, Minorities Rights Group International, Health Foundation, Wellcome Trust, WHO and the United Kingdom's National Health Service. Since early 2020, he has served in various ethics advisory roles in global and local COVID-19 responses. See Annex 1.

Peter Waiswa



Peter Waiswa is Associate Professor of Health Policy Planning and Management of the School of Public Health at Makerere University College of Health Sciences, Uganda. He has been part of many strategic policies and initiatives especially in the areas of maternal, newborn and child health. He is a leading African academic with over 150 peer-reviewed publications including books, and actively involved in local, national and global policy-making and implementation. For instance, he is a member of Uganda's National Immunization Technical Advisory Group, which provides independent advice to government and partners on immunization services and vaccines, including for COVID-19. He is also a member of the WHO Strategic and Technical Advisory Group of Experts for Maternal, Newborn, Child and Adolescent Health and Nutrition, which currently provides independent advice to the WHO Director-General. He is an academic who engages strongly with community development projects – as founder, member or board chair of various local and international charities. He started and leads the Makerere University Maternal Newborn and Child Health Centre of Excellence and the INDEPTH Network Maternal, Newborn and Child Health Research Group. He runs research and programme projects in urban centres in Uganda. See Annex 1.

Sibongile Walaza



Sibongile Walaza's background is in clinical medicine with a master's in Epidemiology and Biostats and a PhD in Public Health. Her experience in public health and infectious diseases spans over 20 years; starting initially as a coordinator and later a co-investigator for two large multi-centre HIV prevention clinical trials and, since 2011, as an epidemiologist in surveillance programmes. She is currently employed as a Section Head of the Epidemiology Team for the Centre for Respiratory Diseases and Meningitis at the National Institute for Communicable Diseases in South Africa. In this position, she is responsible for implementation of the surveillance and research programmes within the centre and coordinating/managing the teams responding to outbreaks that involve pathogens that cause respiratory diseases and meningitis. She has developed protocols for expanded surveillance for severe respiratory illness and for pneumonia surveillance, and trained and managed surveillance field teams, and data and epidemiologist teams. She is the principal investigator for the pneumonia surveillance and influenza-like illness surveillance protocols and leads the development and annual revision of influenza recommendations for the diagnosis, management, prevention and public health response for influenza. She has published over 50 peer-reviewed articles, five of which formed part of her PhD, entitled "Interaction between influenza and tuberculosis in South Africa, a country with high prevalence of tuberculosis and HIV". She has a joint appointment as Honorary Senior Lecturer at the School of Public Health, University of the Witwatersrand and has co-supervised MSc students in the field of epidemiology. See Annex 1.

Annex: Conflicts of interest

Name	Declared conflict
Lorena Acevedo Sedano	No conflict declared.
Ahmed Alhadyan	No conflict declared.
Wagdy Amin	No conflict declared.
André Ricardo Araujo da Silva	No conflict declared.
Mamadou Dioulde Balde	No conflict declared.
Erlina Burhan	No conflict declared.
Maurizio Cecconi	No conflict declared.
Vu Quoc Dat	No conflict declared.
Andrew Gray	<p>5b. I am a member of three advisory committees at the South African Health Products Regulatory Authority: Names and Scheduling Committee (Chair), Pharmacovigilance Committee, Legal Committee.</p> <p>I am a member of the South African National Essential Medicines List Committee and Chair its Paediatric Expert Review Committee. I am co-Director of the WHO Collaborating Centre for Pharmaceutical Policy and Evidence Based Practice, located in the Discipline of Pharmaceutical Sciences, University of KwaZulu-Natal.</p> <p>Decision: no action needed.</p>
Rashan Haniffa	No conflict declared.
AKM Mosharraf Hossain	No conflict declared.
David Shu Cheong Hui	No conflict declared.
Yae-Jean Kim	No conflict declared.
Niranjan Kissoon	No conflict declared.
Yee-Sin Leo	No conflict declared.
Rakesh Lodha	No conflict declared.
Hela Manai	No conflict declared.
Asif Mujtaba Mahmud	No conflict declared.
Refiloe Masekela	No conflict declared.
Emmanuel Nsutebu	No conflict declared.
Nida Qadir	<p>2a. Research support, CDC, US\$ 170 000.</p> <p>I am the site principal investigator for the Investigating Respiratory Viruses in the Acutely Ill Network. This is an observational, prospective, public health surveillance activity conducted by CDC to evaluate influenza and COVID-19 vaccine effectiveness. All funding is provided by CDC and is used for conduct of the study. There are no commercial or for-profit entities involved. The full duration is not yet known, but expected to continue through 2023.</p> <p>Decision: no action needed.</p>
Saniya Sabzwari	No conflict declared.
Nancy Virginia Sandoval Paiz	No conflict declared.
Yinzhong Shen	No conflict declared.
Gulzhan Shopayeva	No conflict declared.

Sebastián Ugarte Ubiergo	No conflict declared.
Timothy Uyeki	No conflict declared.
Evangelina Vazquez Curiel	No conflict declared.
Sridhar Venkatapuram	No conflict declared.
Peter Waiswa	No conflict declared.
Sibongile Walaza	No conflict declared.